


## Pneumatic Ship Unloader

# GPU80-600

Single pipe  
80-600t/h



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# Introduction

*The GPU80-600 series is suitable for discharging of various bulk materials especially for the grain but as well as for products from the power plant, feed mill and aluminum industry.*

*These equipments are usually customized and adapt to the client's environment, which can unload all type of inland or oceangoing vessels and discharge directly onto conveyors, trucks or wagons.*

*The systems almost dust-free through the use of closed conveyor and aspiration systems.*

*They are powered either directly by low voltage or medium voltage with on-board transformers to get the corresponding voltages. If this is not possible, diesel generators can be used.*

# Multi-type Undercarriage Design

Choose appropriate installation type based on your port condition and requirements.



## Rail

- Port standard pathway
- Apply to standard port berth and large vessels



## Fixed

- Fixed on the port
- Apply to mid-and-small port and vessels



## Steerable rubber tires

- 2 types: pulled or self-propelled
- Apply to one-shot job or multi-function port

# Wide Range of Application

## Multiple use

- From barges to panamax or tankers, any type of vessel.
- Suction conveying with loading devices for hoppers, trucks, wagons or chain / belt conveyors.

## Various cargo

- **Grain:** wheat, rice, soybeans, corn, rapeseeds and cassava etc.
- **Powder:** cement, mineral powder, fly ash and pulverized lime etc.
- **Special material:** cement clinker, sulfur, aluminum, alumina, soda ash, salt, fertilizer, petrol coke and pulverized coal etc.

## No limitation to climatic conditions

- The closed-loop conveying condition with no limitation to bad climatic conditions, such as high salinity, dusty atmosphere and extreme temperatures.
- All parts treated by sand blasting; various antirust coatings and epoxy enamels.



# Main Application Industry

Pneumatic unloader is widely used in different industries with its automatic operation and high capacity.

Specialized solution will be provided from consulting & engineering to application and after-sales service. The whole solution will be based on the industry's application and special characteristics.

The following industries can be served with our expertise and know-how:

- Terminal (silo terminal, integrated terminal, bulk terminal and grain terminal etc.)
- Industrial plant, power plant, aluminum smelter and cement industry etc.
- Feed mill, malting plant and flour mill etc.
- Grain storage industry



# Application of Different Materials

## Typical parameters of applicable material

Specific gravity: 0.45-3.00t/m<sup>3</sup>

Humidity: <25%

## Flowable material

Granule material, semi dense phase gas-solid flow.

**Typical material:** multiple grains, such as soybean, corn, wheat, rice, rape seed and cassava etc.

## Non-flowable material

Powder material, dilute phase gas-solid flow, suspension flow.

**Typical material:** cement, mineral powder, fly ash and pulverized lime etc.

Compare to the flowable material, the unloading of non-flowable material need to consider the material's characteristics. In this condition, a feeder can be equipped to help to transfer the material into the suction nozzle.

## Special material

**Typical material:** cement clinker, sulfur powder, alumina, soda ash, salt, fertilizer, petrol coke and pulverized coal etc.

## Typical material



Grain



Cement



Alumina

# Efficient & Intelligent

## Working stability

The flow and pressure does not change with time, and the capacity keeps in a stable condition which makes the workload predictable.

## Auto-adjust airflow velocity

- Optimal material conveying speed
- Variable diameter suction pipe balances and decreases the conveying speed.
- Strengthen the wear resistance of the airlock, elbow, pipes and moveable parts etc.

## Intelligent

Full-automatic control, real-time and visible monitoring.

## The advantages of dual-pipe system

- Operating in different but neighbor hatches.
- Operating in different areas of the same hatch to keep balance of the ship.
- The unloading process continues even any component breakdown occurs in one conveying line.

## Continuous operation

- Automatic nozzle dipping device controls the depth of immersion.
- An automatic screw nozzle can be adapted to prevent non-free-flowing materials, such as cement, from caking. Thus ensures a continuous operation with high average capacity.



# Safe & Flexible Working Range

## Safety

- Consideration of the ATEX regulations, equipped with explosion protected monitoring devices, temperature and pressure detection, and flame extinguishers to ensure safety.
- The ability to lower the boom to the ground prevents the danger of aerial maintenance or replacement work. At typhoon or storm conditions, it can be anchored to the ground for safety.
- Advanced and reliable electric control system ensures the reliability and safety of the equipment.

## Auxiliary winch for excavator & skid-steer loader

With the auxiliary winch on the boom, skid-steer loader or chain excavator(up to 10 tons) can be lifted into the ship's hold to support the cleaning operation.

## Wide working range

- Elevation angle: 10°-48°,
- Rotation angle: -135°~+135°

# High Performance, Low Energy Consumption

## Energy-saving

>30%, compared to unloader with roots blower

## Capacity

- Single pipe: 80-600 t/h
- Dual-pipe: 600-1200 t/h

## Material crushing

<1%

## Material loss

Under enclosed conveying, nearly 0% material loss.

## Life cycle

20 years

## Wearing parts life

- Horizontal pipe: 500,000 tons
- Vertical pipe: 1,000,000 tons
- Discharger: 300,000 tons
- Elbow: 300,000 tons



# Pro-environment

## Protect your material

No loss, damage, contamination and foreign matter mix-in risk under the closed-loop conveying.

## Clean

- Dust-free through closed conveying
- Latest scavenging filter cleaning system, compressing the clean air through a synthetic nozzle system to clean the filter bags.
- Dedusting efficiency as high as 99.5%
- Emission levels below 20 mg / Nm<sup>3</sup>

## Denoising

- High-frequency noise can be eliminated by muffler or sound proofed rooms.
- The noise is less than 80db within 10 meters.

## Low energy consumption

- Energy consumption will be reduced under variable diameter suction pipe.
- Multistage turbo blower saves more than 30% energy.



# Key Component

## Multi-stage turbo blower- 30% energy can be saved

- ✓ More than 30% energy can be saved, compared to the unloader with roots blower.
- ✓ Low noise and anti-fraying
- ✓ Reliable operation with long life cycle.
- ✓ The key components of the electrical control system choose the leading-brand.
- ✓ Full-automatic control, real-time and visible monitoring while with safety chain control technology.



## Efficient filter

- ✓ Filmed bag with high-molecular sintered plate material.
- ✓ Water proof / dedusting / low resistance
- ✓ Long life
- ✓ Continuous operation



## Airlock discharger

- ✓ No longer with the stuck trouble since less wear exist, thus less maintenance needed.
- ✓ Tool steel blade, capable to prevent foreign material like wood, wire and twine etc.
- ✓ Eccentric structure reduces friction surface and casing wear, thus extends the lifetime.
- ✓ Interchangeable rotor seal ring extends the impeller life.



# Minimize Your Cost

As to cost, considering only the purchase cost is far, far from enough. The maintenance cost, apportioned cost based on the life cycle and the equipment performance, are also critical for the users. Only when considering all of these factors, it is really overall cost.

## Lower your overall cost

### - Low purchase cost

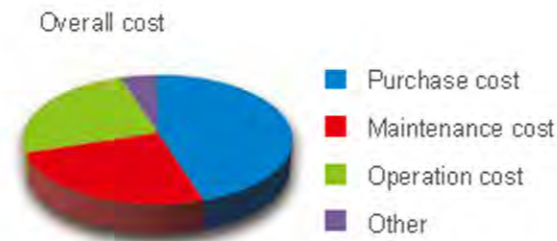
Competitive price

### - Low maintenance cost

Latest filter technology and the system proven to be the optimal compact design and low maintenance.

### - Low operation cost

Full-scale training of operation, application and maintenance will be provided, which will ensure the client's quick-start on the equipment.



Note: The chart is only for reference, without accurate proportion analysis.

**High performance further reduces the per-use cost and extends the life cycle**

# Specification Briefing

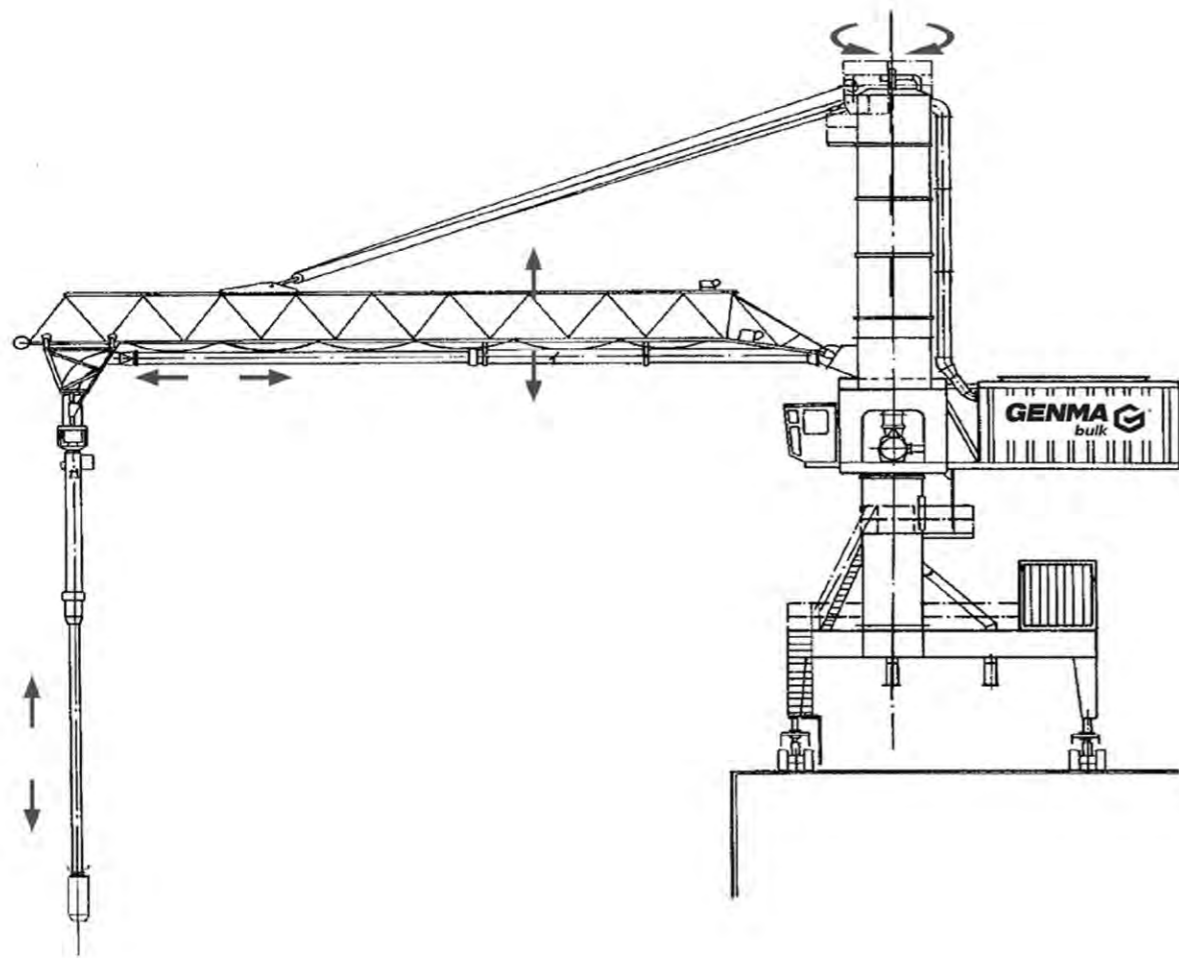
## Key data table (single pipe)

Model	Rated Throughput (T/H)	Main Motor Power (Kw)	Total Installed Capacity (Kw)	Standard Operation Mode	
				Horizontal(M)	Vertical(M)
GPU80	80	75	90	12	8
GPU100	100	90	105	12	10
GPU150	150	160	180	15	10
GPU200	200	200	230	18	15
GPU300	300	315	350	25	20
GPU400	400	400	450	25	20
GPU500	500	500	550	25	20
GPU600	600	630	680	28	25

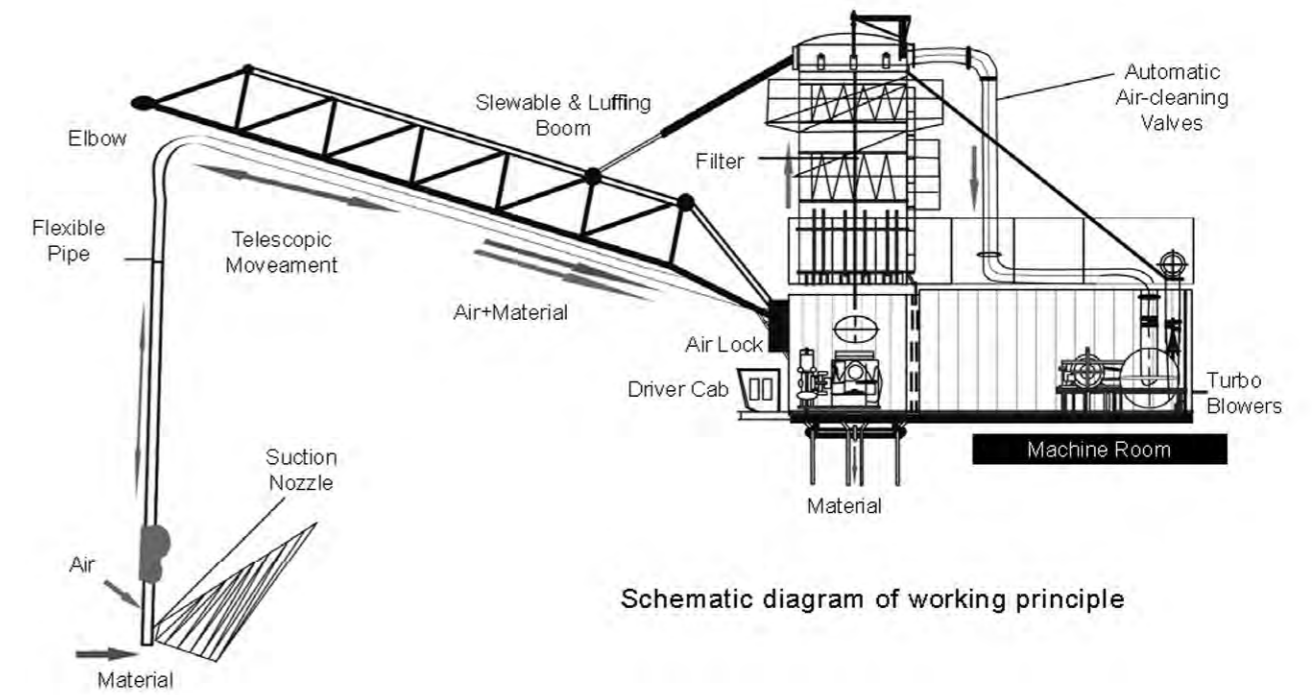
**We can customize !**



# Configuration



# Structure



Schematic diagram of working principle

# Testimonials

*"The system is very flexible and in high efficiency which makes our warehouse entry and exiting more convenient."*

**China, steel silo bulk grain conveying project, 2008**

*"GENMA's ship unloader applied well to our mid-and-small port, energy-saving and with safety guarantee."*

**China, bulk grain port discharging & transportation project, 2010**

*"After 2 years' application, I believe GENMA is the correct choice. The efficient solution makes our work much more easier while the environment-protect design is also an appreciative highlight."*

**China , bulk grain port discharging & transportation project, 2014**

*"Since GENMA's project delivered to us, it really helped us a lot on working efficiency. I am fully satisfied with the whole process of consulting to solution & delivery. And even the training after delivery is also great."*

**China , bulk grain port discharging & transportation project, 2012**

*"I will choose GENMA again, if any potential project in the future. GENMA's technical & service team will solve my problem with their expertise. Their solution and service impressed me."*

**China, 300t/h , Pneumatic ship unloader**

# Far More than Equipment Providing...



# GENMA Worldwide



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